

## ABSTRACT

Simplified method of detection by spheres when there is a low signal to noise ratio

Method of detecting a plurality  $K$  of symbols ( $d_k(i)$ ) transmitted by or for a plurality  $K$  of users from a received signal, each symbol of a user belonging to a modulation constellation, the detection method using a lattice of points ( $\Xi$ ) generated by the said modulation constellations, the said plurality of symbols of the different users being represented by a point amongst a subset of points in the said lattice, the said constellation and the received signal being represented by a point characteristic of this signal, referred to as the received point, translated from a point in the said constellation by a noise vector ( $\mathbf{n}$ ), the method comprising a step of orthogonal projection of the received point onto an affine subspace, referred to as a projection subspace, parallel to or merged with an affine subspace delimiting the said constellation, and a step of seeking the closest neighbour to the point thus projected amongst the points in the said constellation.

Fig. 4